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ABSTRACT

This user's manual explains the Articulation Research System (ARS), which was created by Santa Fe Community College, and its database. As introductory material notes, the ARS was designed to: (1) follow former community college students through their bachelor's degree programs in the Florida State University System (SUS); (2) compare student performance in community college coursework with related upper-division coursework; (3) be usable by other Florida community colleges using varying student record formats; and (4) be usable by curriculum evaluation administrators. After the manual's introduction covers the background and hardware requirements of the system and provides an overview of the ARS and the use of the manual, the next section describes the three ARS files: the ARS database, community college history files, and SUS files. The following section focuses on the program, format, and documentation libraries of the ARS. After a description of operating procedures for adding and changing data, obtaining special reports, and maintaining the ARS libraries, the manual examines the Curriculum Evaluation Product, which permits the comparison of performance in community college and upper-division courses. The final sections focus on system output, ad hoc reporting, and ARS catalogued procedures. Appendices present student history data elements, provide a non-technical explanation of operating ARS, review the ARS data elements, and present the Statewide Course Numbering System for discipline areas. (KL)

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articulation research system

A NEW DIRECTION IN CURRICULUM EVALUATION

JC 820 514

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USER'S MANUAL

ARTICULATION RESEARCH SYSTEM
USER'S MANUAL

1982

Santa Fe Community College
3000 N.W. 83rd Street
Gainesville, Florida 32601

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PREFACE

The Articulation Research System (ARS) began as an idea at Santa Fe Community College in 1977. After several pilot projects were conducted and an early version of ARS was developed at Santa Fe, funding for the current version of ARS was obtained through a State of Florida's Department of Education, computer resource sharing grant, #081098. The grant funded the further development of ARS which also enabled the system to become sufficiently generalized to be used by other community colleges. The project developed ARS versions for seven of Florida's public community colleges.

The success of any major project depends on those individuals whose professional skills and attitudes make a project team greater than the "sum of its parts". Taking the risk of inadvertently omitting some of the team members, we would like to express appreciation to the following professionals who have made ARS a success: Pat Windham, Division of Community College's Research Analyst, without whose consultation and assistance in obtaining State University System data, ARS would not have been possible; Susan Barfield, CIRCA Systems Analyst, who developed the ARS versions for four of the participating colleges, developed the ARS cataloged JCL procedures and served as general technical consultant; Rita Meng, Systems Coordinator, who developed the ARS versions for two of the participating colleges and served as general technical consultant; Lynn Tanny, CIRCA Systems Analyst Supervisor, who developed a large part of the Curriculum Evaluation Product; Martha Bernal and Silvia Rodriguez, who assisted in the development of the ARS Technical Reference Manual; Mary Lee Nance, who assisted in the development of the ARS User's Manual; and finally Dr. John Sullins, Executive Dean for College Program Planning and Development at Santa Fe Community College, whose continuing encouragement and consultation served as a foundation for the project.

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INTRODUCTION

SYSTEM BACKGROUND

In the Fall of 1976, Santa Fe Community College initiated a review of its general education program. With full involvement of the faculty and administration, a slow evolution took place, resulting in a revised general education program that was implemented in the Fall Term, 1979, with planned additional changes through the Fall Term, 1982.

Early in the general education revision process, it was realized that the ability to evaluate the results of the changes should be an integral part of the total program. With this in mind, certain course and college wide assessment mechanisms were incorporated into the program. One of the planned evaluation efforts was to use State University System (SUS) performance data through machine readable files available from the Division of Community Colleges.

Santa Fe initially accepted a single term's data (Fall,1977) and utilized the Statistical Package for the Social Sciences (SPSS) available through the Northeast Regional Data Center to thoroughly analyze the performance of former students who were in the State University System during that term. It became apparent that this source of data would have additional value if on-going records of the former SFCC students' SUS performance were maintained and if this performance could be related back to the students' coursework at SFCC. With this thought, the Articulation Research System was born.

The Division readily supplied the SUS data that were combined, by social security number, with Santa Fe student history files. Using the Statistical Analysis System (SAS), which significantly surpassed SPSS in data handling ability, appropriate data elements were selected, edited and formatted to allow both periodic and ad hoc reporting capability.

Interest generated by the system during the next year resulted in the submission, in June, 1980, of a request for a DOE Educational Computing Project Grant to modify the basic Articulation Research System so that it could be adapted for use by other community colleges. The following six colleges agreed to participate with SFCC in this project, which resulted in each having a fully operational version of ARS:

Daytona Beach Community College
Florida Junior College at Jacksonville
Hillsborough Community College
Palm Beach Junior College
Seminole Community College
Valencia Community College

SYSTEM REQUIREMENTS

Recognizing the need to evaluate the community college graduate's general education preparation for upper division coursework in the State University System of Florida, the concept of the Articulation Research System was developed at Santa Fe Community College. In determining the system requirements, it was decided that the system needed to (1) follow former community college students through their bachelor degree programs at the State Universities, (2) be able to compare student performance in community college coursework with related upper division coursework, (3) be generalized enough to be able to be used by other public community colleges in Florida, (4) be flexible enough to accommodate the specific student record formats at each individual community college and (5) be friendly enough to be used by curriculum evaluation administrators at the community colleges.

Several situations exist in the State of Florida which made the implementation of these system requirements possible. First, student performance data for former community college students in the State University System were readily available through the Division of Community College's Research Bureau. Second, the existence of a Statewide Course Numbering System (SCNS) enabled ARS to relate coursework in the State University System to coursework at the community colleges. And last, the existence of the State University System Regional Data Centers, particularly the Northeast Regional Data Center in Gainesville, Florida, allowed the use of common software by community colleges across the state without the need to redesign and implement ARS for different software languages and hardware configurations.

IMPLEMENTATION ENVIRONMENT

The Articulation Research System was developed and implemented for an IBM OS/MVS release 3.8 operating system using the JES2/NJE release 3 job entry control system on an Amdahl 470 V/6-II and IBM 3033N multiprocessing computer configuration at the Northeast Regional Data Center (NERDC) in Gainesville, Florida. The underlying programming language was the Statistical Analysis System (SAS) release 79.5. ARS was developed as a batch processing system using either the Northeast Regional Data Center's Terminal Control Program (TCP) or the IBM Time Sharing Option (TSO) facility.

SYSTEM OVERVIEW

The Articulation Research System combines each State University System term's demographic and performance data for former community college students with those students' community college history records. The combined records are stored in the ARS Data Base which contains records for each student in the State University System who was a former community college student. These data include their community college course records, their demographic and biographical data from both SUS and the community college, their performance records for each term in SUS, and their SUS course records.

The ARS Data Base has been designed in a relational data base manner in an attempt to maintain data independence, to simplify processing, to provide a simpler user view of the data and to allow modifications of the data base for individual ARS versions.

Each time a new SUS term's data, with the associated community college history data, are added to the ARS Data Base, a series of user reports are generated. These reports include term profile reports, term performance reports and the ARS time series reports.

Reports which can be generated at any time by the ARS user include a data base listing of selected former community college students displaying biographical and demographic data for each student and each student's community college performance statistics, community college course records, and SUS performance statistics and coursework for each SUS term. The Plot/Chart report series uses the student's relative term in the community college and SUS as a means of displaying performance comparisons for many subgroups of the ARS Data Base.

The Curriculum Evaluation Product may be the most powerful feature of ARS. Through a special command language, it provides a means to compare the performance of former community college students who had taken a course or sequence of courses at the community college with related coursework performance in the State University System.

An assortment of ARS utility programs allows the ARS user to perform most system maintenance applications without the complexities of a programming language or Job Control Language. The ARS utility programs provide the user with the capability to (1) update community college course numbers, (2) convert SUS quarter hours to semester hours prior to adding the Fall 1981 SUS records and (3) maintain the ARS system libraries.

Security, accuracy and privacy procedures have been planned into the Articulation Research System. All ARS master files and system libraries have automated backup facilities. Security and privacy of records can be accomplished using the NERDC Tape Management System (TMS) protection features.

USE of the USER'S MANUAL

This User's Manual is designed for use by individuals who wish to utilize a version of the Articulation Research System and its Data Base which have been previously established at the Northeast Regional Data Center (NERDC) in Gainesville, Florida. Appendix B will guide the user through a non-technical, step-by-step process for operating the system. It is recommended, however, that the user carefully read the entire manual to ensure maximum benefit from the system. Users should also familiarize themselves with the ARS Technical Reference Manual, the Northeast Regional Data Center's General and Time-Sharing User Manuals and the SAS User's Guide.

EQUIPMENT NEEDED

To access NERDC, you should utilize a computer terminal with an appropriate modem or acoustic coupler that will allow telephone connection with the NERDC computer system. Terminals that colleges purchased for use with the Division of Community Colleges COIN System will work very well with ARS.

Since many ARS Reports are rather lengthy, a college will usually have the reports printed by the NERDC high speed printers with an arrangement to have the reports mailed to the college. Shorter reports can be printed on the college's terminal. With completion of appropriate networking, the reports could be printed at either Southwest (Tampa) or Northwest (Tallahassee) Regional Data Centers.

TIME SHARING

The regional data centers were established as time sharing computer operations available to public agencies. To pay for utilization of the center, a purchase order should be made to:

Northeast Regional Data Center
233 SSRB
University of Florida
Gainesville, Florida 32611

The college will then be assigned an access number (with password) and will be billed monthly for charges against the access number. It is suggested that the original Purchase Order be for $500 until system utilization with corresponding cost is determined. Extensive use of the system outside the standard ARS Reports could result in annual costs in excess of $500.

TELEPHONE NUMBERS

The following telephone numbers may be dialed for access to NERDC.

300 Baud (Most Terminals)
(904) 392-5311
SunCom 622-5311

1200 Baud
(904) 392-4727
SunCom 622-4727

Colleges in the Miami, Tampa, Jacksonville and Tallahassee areas may be able to access NERDC through locally dialed numbers. This should be investigated as a possible cost savings.

SYSTEM FILES

ARS DATA BASE

The Articulation Research System Data Base resides on standard labeled, 9-track tapes recorded at 6250 b.p.i. There are always three generations of the ARS Data Base present. The ARS Data Base is maintained as one OS data set, catalogued as a generation using the IBM OS/MVS Generation Data Group (GDG) facility. Each generation resides on a separate tape volume, with the next generation being written onto the oldest generation's tape volume.

There are four master files or data relations in the ARS Data Base. The SAS data set names associated with each of these master files are: BIOG, CCRS, UTERM and UCRS. A description of each of these master files is presented below.

BIOG:	(Biographical Data Set) contains one record for each student in ARS.
CCRS:	(Community College Course Data Set) contains one record for each course taken at the community college by each former student.
UTERM:	(University Term Data Set) contains one record for each SUS term attended by each former student.
UCRS:	(University Course Data Set) contains one record for each course taken in SUS by each former student.

Each master file has a primary key which uniquely identifies each record in that master file. Each master file is also sorted by the primary key. The primary keys, identified by their SAS variable names, for each master file are listed below.

MASTER FILE	PRIMARY KEY (SORT KEY)
BIOG	SSN
CCRS	SSN,TERM,COURSE,SECT,CREDITS,GRADE
UTERM	SSN,UTERM
UCRS	SSN,UTERM,COURSE,CREDITS,GRADE

COMMUNITY COLLEGE HISTORY FILES

Although community college history file formats are specific to each community college, some common characteristics and processing exist for all versions of the Articulation Research System. For each term's update of the ARS Data Base, the community college supplies the community college history data for the identified former students. These data are supplied on a 9-track, non-labeled tape in either one or two files. This tape volume is logged into the NERDC Tape Management System with a volume serial name of XXXX90, where XXXX is the community college's prefix (see Tapes and Naming Conventions in the ARS Technical Reference Manual).

During the processing involved with adding the new community college and SUS data to the ARS Data Base, a copy of the community college history data is made. This copy consists of two SAS data sets, HBIOG and COURSES. There are always three generations of the community college history data sets present. These history data sets are maintained as one OS data set, catalogued as a generation using the IBM OS/MVS Generation Data Group (GDG) facility. Each generation resides on a separate 9-track, standard labeled, tape volume recorded at 6250 b.p.i., with the next generation being written on the oldest generation's tape volume.

A description of each of these community college history data sets is presented below.

HBIOG: (Biographical Data Set) contains one record for each former student.

COURSES: (Community College Course Data Set) contains one record for each community college course taken by each former student.

Each data set has a primary key which uniquely identifies each record in that data set. Each data set is also sorted by the primary key. The primary keys, identified by their SAS variable names, for each data set are listed below.

DATA SET	PRIMARY KEY (SORT KEY)
BIOG	SSN
COURSES	SSN,TERM,COURSE,SECT,CREDITS,GRADE

These SAS data sets are saved only as a back-up precaution and, as such, are not directly used to produce ARS user output.

SUS FILES

After each SUS term, data are available from the Division of Community College's Research Bureau containing demographic and performance information for each public community college's former students attending a state university during that term. Upon requesting this information from the Research Bureau, the SUS data are written to the generation data group (GDG) data set maintained by ARS for that purpose. This data set, which is not a SAS data set, resides on disk (SYSDA) of which three generations are kept at any given time. When a new generation is added to the GDG, the oldest generation is deleted.

The SUS data set contains one record for each former community college student for the particular SUS term. The variable length record for the SUS data set contains both demographic data and course data.

SYSTEM LIBRARIES

The Articulation Research System maintains and uses three libraries: the Program Library, the Format Library and the Documentation Library. Each of the libraries is maintained on disk (SYSDA) as an OS Partitioned Data Set. The libraries are backed up in unloaded form on one 9-track, standard labeled, 6250 b.p.i. tape as three files. The ARS utility procedures, ARSBACKL, ARSLOADL, ARSTOTCP and ARSTOPDS, maintain these libraries and are described later.

PROGRAM LIBRARY

The ARS Program Library contains one Partitioned Data Set (PDS) member for each ARS source program. Since SAS is not a compiler-based programming language, no load module versions of the programs are needed. ARS executes the programs directly from the source code. Although ARS provides the basic source programs, utility procedures are provided with ARS to allow the user to add new programs to his particular version of ARS or to make changes to any of the existing ARS programs.

FORMAT LIBRARY

The ARS Format Library uses a unique SAS feature which allows ARS to decode the coding structures used throughout the ARS Data Base. The "decode" formats are related to particular data elements when report programs are executed (see the SAS User's Guide), providing the user with useful descriptive labels for data values rather than the ARS codes. The Format Library contains one PDS member for each decode format and stores the formats in "load module" form. Adding new formats or replacing existing formats can be done using the SAS "PROC FORMAT". A hard copy listing of the ARS Format Library can be obtained by using the SAS "PROC FMTLIB" procedure as documented in the SAS Supplemental Library User's Guide.

DOCUMENTATION LIBRARY

The ARS Documentation Library contains the various sections of the ARS Technical Reference Manual stored as PDS members. The documentation is stored as Waterloo SCRIPT SYSPAPER documents and can be maintained using the ARS library maintenance utilities. Each document is in preformatted form. Instructions for printing the ARS Technical Reference Manual from the ARS Documentation Library are provided in the ARS Technical Reference Manual.

OPERATION PROCEDURES

Operation procedures for the Articulation Research System can be divided into five categories:

(1) Adding Data to the ARS Data Base
(2) Obtaining Special Reports from the ARS Data Base
(3) Changing Data in the ARS Data Base
(4) Maintaining the ARS Libraries
(5) Using the Curriculum Evaluation Product.

Each of these five categories will be examined in detail in the following sections.

ADDING DATA TO THE ARS DATA BASE

OBTAINING SUS DATA: The first step in adding data to the ARS Data Base is to obtain the next term's SUS data. These data are obtained from the Division of Community Colleges Research Bureau. The term's SUS data are written into the community college's SUSDATA Generation Data Group and becomes the current generation. The following information should be supplied to the DCC Research Bureau to identify the SUSDATA file:

```
DSN    UF.aaaaaaaa.bbbb.SUSDATA(+1)
UNIT   SYSDA
DISP   (NEW,CATLG)
SPACE  (TRK,(40,20),RLSE)
DCB    (MODEL,RECFM=VB,LRECL=949,BLKSIZE=7596)
```

where aaaaaaaa is the college's NERDC account number after the first digit is converted to an alphabetic character corresponding to the digit's ordinal position and bbbb is the college's ARS college prefix. As an example, the NERDC account 70001519 would be represented as G0001519.

PUT SOCIAL SECURITY NUMBERS: The next step in adding data to the ARS Data Base is to put the former students' social security numbers on tape and or hard copy to allow the community college to obtain the matching community college history records for those students. To do this, use the ARS catalogued procedure, "ARSPSSN". The tape and or hard copy are then picked up at the Northeast Regional Data Center. The tape will have a volume serial name of "XXXX90", where XXXX represents the community college ARS prefix.

The following job will write social security numbers from the new SUS data to hardcopy and tape for SFCC using the NERDC account 70001519.

```
jobname JOB (7000,1519,29,10,0),programmer,CLASS=2
*PASSWORD sequence,password
*ROUTE PRINT LOCAL
*SETUP TAPE9,1
 EXEC ARSPSSN,COLLEGE=SFCC,ACCOUNT=G0001519
*
```

GET COMMUNITY COLLEGE HISTORY: Once the community college receives the social security numbers for their former students, the community college history records for those students are written onto a 9-track, non-labeled, 1600 b.p.i. magnetic tape. This tape is then sent to the Northeast Regional Data Center and logged into the Tape Managment System with a volume serial name of "XXXX90", where the XXXX represents the community college ARS prefix.

ADD TERM DATA TO ARS DATA BASE: At this point, the new SUS term's data can be added to the ARS Data Base by executing the ARS catalogued procedure, "ARS". Hardcopy output from this job will be on both standard forms and special forms and should be routed to "LOCAL".

The following job will add data to the SFCC ARS Data Base using the NERDC account 70001519. The SFCC history data would be in a non-IBM generated tape file with a logical record length of 80 and a block size of 3200.

```
jobname JOB (7000,1519,200,50,0),programmer,CLASS = 2
*PASSWORD sequence,password
*SETUP TAPE9,2
*ROUTE PRINT LOCAL
 EXEC ARS,COLLEGE = SFCC,ACCOUNT = G0001519,
 LRECL = 80,BLKSIZE = 3200
*
```

OBTAINING SPECIAL REPORTS

THE PLOT CHART RELATIVE TERM SERIES: To obtain the PLOT CHART Relative Term series of reports, use the "ARSRPT" catalogued procedure with the program "PLOTCHRT". The output will be on standard forms unless otherwise specified.

The following JOB will generate the PLOT CHART RELATIVE TERM SERIES reports for SFCC using the NERDC account 70001519.

```
jobname JOB (7000,1519,200,30,0),programmer,CLASS = 2
*PASSWORD sequence,password
*SETUP TAPE9,1
*ROUTE PRINT LOCAL
 EXEC ARSRPT,COLLEGE = SFCC,ACCOUNT = G0001519,
 PROGRAM = PLOTCHRT,FORMS = 2001
*
```

DATA BASE LISTING: To obtain a combined community college and SUS "transcript" for a student or set of students, use the "ARSRPT" catalogued procedure with the program "DBLIST". The social security numbers should follow the procedure beginning in column 1 as follows:

```
jobname JOB (7000,1519,29,10,0),programmer
*PASSWORD sequence,password
*SETUP TAPE9,1
*ROUTE PRINT LOCAL
 EXEC ARSRPT,COLLEGE = SFCC,ACCOUNT = G0001519,
 PROGRAM = DBLIST,FORMS = 0041
 SSN DD *
....social....
....security....
....numbers....
....go....
....here....
*
```

The output from "DBLIST" is designed to fit in an 8 1/2" x 11" format. Specify an output forms code of "0041" for white 8 1/2" x 11" paper. The social security numbers supplied to "DBLIST" can also be provided in a data set rather than "in-stream", by overriding the "SSN" DD statement with a DD statement referring to the data set containing the social security numbers.

AD HOC REPORTING: Any SAS program using the ARS Data Base and Format Library as input can be run using the "ARSRPT" catalogued procedure. The SAS program can either be in the "ARSPGMS" Program Library or can be "in-stream". To use an in-stream SAS program, override the SYSIN DD statement to point to the in-stream program as follows:

```
//jobname JOB (7000,1519,29,10,0),programmer
/*PASSWORD sequence,password
/*SETUP TAPE9,1
/*ROUTE PRINT LOCAL
// EXEC ARSRPT,COLLEGE = SFCC,ACCOUNT = G0001519
//SYSIN DD *
....put....
....in-stream....
....SAS program....
....here....
```

CHANGING DATA IN THE ARS DATA BASE

UPDATING COMMUNITY COLLEGE COURSE NUMBERS: When course numbers are changed by the Statewide Course Numbering System, the community college course numbers in the ARS Data Base should also be changed. These changes can be applied using the ARS catalogued procedure "ARSUPD" with the ARS source program "CRSUPD". The course number changes should be typed with the old course number beginning in column 1 and the new course number beginning in column 10. The following example describes the updating of community college course numbers.

```
//jobname JOB (7000,1519,29,10,0),programmer
/*PASSWORD sequence,password
/*SETUP TAPE9,2
/*ROUTE PRINT LOCAL
// EXEC ARSUPD,COLLEGE = SFCC,ACCOUNT = G0001519,
// PROGRAM = CRSUPD
//CHANGES DD *
ENC1103 ENC1101
ENC1136 ENC1102
....additional....
....course number....
....changes here....
/*
```

This job stream will change the English course numbers in the SFCC ARS community college course records to reflect the SCNS English Discipline Taxonomy changes for 1981. The "CHANGES" DD statement following the EXEC statement must be present.

CONVERTING SUS QUARTER HOURS TO SEMESTER HOURS: The State University System has changed from the Quarter calendar to the Semester calendar beginning in Fall Term, 1981. In order to avoid mixing quarter hours with semester hours in the ARS Data Base, a program has been added to the ARS Program Library which will make the necessary conversions to semester hours. This program should only be run once, after the Summer 1981 SUS data are added to the ARS Data Base and before the Fall 1981 data are added. The program is run using the ARS procedure "ARSUPD" with the program "SEMESTER". The following job will change quarter hours to semester hours for the SFCC ARS Data Base using the NERDC account 70001519.

```
//jobname JOB (7000,1519,99,10,0),programmer,CLASS=2
/*PASSWORD sequence,password
/*SETUP TAPE9,2
// EXEC ARSUPD,COLLEGE=SFCC,ACCOUNT=G0001519,
// PROGRAM=SEMESTER
/*
```

MAINTAINING THE ARS LIBRARIES

BACKING UP THE ARS LIBRARIES: Anytime changes are made to any of the three ARS Libraries, the Libraries should be unloaded to tape as a backup precaution. The ARS catalogued procedure "ARSBACKL" is used to unload all three libraries. This should be done even when only one of the libraries is changed since all three backup libraries reside on the same tape volume. The following job will backup the SFCC ARS Libraries using the NERDC account 70001519.

```
//jobname JOB (7000,1519,9,10,0),programmer
/*PASSWORD sequence,password
/*SETUP TAPE9,1
/*ROUTE PRINT LOCAL
// EXEC ARSBACKL,COLLEGE=SFCC,ACCOUNT=G0001519
/*
```

RELOADING THE ARS LIBRARIES: If at any time any or all of the ARS Libraries becomes damaged or deleted, they can be recreated from the tape backup versions using the ARS procedure "ARSLOADL". The following job will reload the SFCC ARS Libraries using the NERDC account 70001519.

```
//jobname JOB (7000,1519,9,20,0),programmer
/*PASSWORD sequence,password
/*SETUP TAPE9,1
/*ROUTE PRINT LOCAL
// EXEC ARSLOADL,COLLEGE=SFCC,ACCOUNT=G0001519
/*
```

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COPYING A PROGRAM FROM AN ARS LIBRARY TO TCP: To make changes to a program in either the ARS Program Library or the ARS Documentation Library, the Partitioned Data Set member for the program must first be copied into the NERDC Terminal Control Program (TCP) file space. The ARS procedure "ARSTOTCP" will copy the program to a temporary TCP file with the name "&JXXXXAA" where XXXX is the JES2 job number assigned to the ARSTOTCP job that copied the Library program. The following job will copy the program "CONVSUS" from the SFCC Program Library "ARSPGMS" to TCP.

```
//jobname JOB (7000,1519,2,10,0),programmer
//*PASSWORD sequence,password
//  EXEC ARSTOTCP,COLLEGE = SFCC,ACCOUNT = G0001519,
//  LIBRARY = ARSPGMS,PROGRAM = CONVSUS
//*
```

COPYING A PROGRAM FROM TCP TO AN ARS LIBRARY: After changes have been made to an ARS program or a new ARS program has been developed, it should be copied from TCP to the Program or Documentation Library. The ARS procedure "ARSTOPDS" will copy a TCP file into one of the ARS Libraries. If the program already exists in the Library, the previous version will be replaced. If the program does not already exist in the Library, the program will be added as a new member to the Partitioned Data Set Library. The following JOB will copy the TCP file "CONVSUS2" to the SFCC "ARSPGMS" Program Library, replacing the previous version of the program "CONVSUS".

```
//jobname JOB (7000,1519,2,10,0),programmer
//*PASSWORD sequence,password
//  EXEC ARSTOPDS,COLLEGE = SFCC,ACCOUNT = G0001519,
//  LIBRARY = ARSPGMS,PROGRAM = CONVSUS
//PROGRAM DD *
//*INCLUDE CONVSUS2
//*
```

CURRICULUM EVALUATION PRODUCT

Although the Curriculum Evaluation Product (CEP) was developed at Santa Fe Community College separately from the Articulation Research System (ARS) project, it is designed to be used with ARS. The CEP software provides a means to compare the performance of former community college students in courses or sequences of courses at the community college with "related" coursework in the State University System. Through the CEP Command Language, the academic administrator is able to address many curriculum questions which have in the past remained unanswered.

The output from CEP consists of a set of Profile Reports and a set of Performance Reports. The Profile Reports provide demographic and biographical data concerning the students who had taken the indicated course or sequence of courses at the community college and continued their education in the State University System. The Profile statistics include the number of students, their average cumulative SUS GPA and their average community college GPA. These statistics are also reported for the following subgroups:

University Attended
Program of Study
Race
Sex
Grade in Course or Sequence
Community College Degree
University Classification

The Performance Reports provide performance related statistics for each related coursework type, identified in the command language. The performance statistics include the number of students, number of SUS grades, average SUS grade, average SUS GPA, and average community college GPA. These statistics are also reported by the following subgroups:

Grade in Community College Course or Sequence
University (optional)
Community College Instructor (optional)

CEP COMMAND LANGUAGE

TERM PARAMETERS: The beginning statements in the CEP Command Language are referred to as the Term Parameters. Using these statements the CEP user can specify the terms in which a former community college student would had to have taken the course or sequence of courses at the community college. For example, to select Fall term, 1979 through Winter term, 1981, the following statements would be used:

BEGIN TERM FALL 1979
END TERM WINTER 1981

The CEP Keywords "BEGIN TERM" and "END TERM" must begin in column one, as is the case with all CEP commands, and must be typed exactly as stated. Valid terms are "FALL", "WINTER", "SPRING" and "SUMMER". The year can be stated as either two or four digits (e.g., 79 instead of 1979). The Term Parameters can be omitted completely, in which case CEP will use all data available in the ARS Data Base. If the BEGIN TERM statement is omitted and the END TERM statement is included, CEP will use all students who had taken the requested courses at the community college up through the indicated END TERM. If the END TERM statement is omitted and the BEGIN TERM statement is included, CEP will use all students who had taken the requested courses at the community college from the indicated BEGIN TERM through the most current term available in the ARS Data Base.

COURSE and SEQUENCE STATEMENTS: The next statement in the command language MUST be either a COURSE or SEQUENCE statement. The COURSE and SEQUENCE statements indicate the beginning of a course or sequence request. The COURSE and SEQUENCE statements can include "BY" options. The available BY options for the COURSE statement are INSTRUCTOR and UNIVERSITY. These options affect the aggregation levels in the CEP Performance Reports. The following COURSE statements are valid:

COURSE
COURSE BY INSTRUCTOR
COURSE BY UNIVERSITY
COURSE BY INSTRUCTOR UNIVERSITY
COURSE BY UNIVERSITY INSTRUCTOR

The last two of these COURSE statements are equivalent. Again, the CEP keyword COURSE must begin in column one. Since the INSTRUCTOR BY option is not valid for a SEQUENCE, the following are the only valid SEQUENCE statements:

SEQUENCE
SEQUENCE BY UNIVERSITY

OVERRIDING TERM PARAMETERS: After a COURSE or SEQUENCE statement, the Term Parameters can be overridden for the particular course or sequence request. Simply restate the Term Parameters as previously discussed. These Term Parameters are in effect only for the specific course or sequence request. The original Term Parameters will again be in effect for the next course or sequence request.

COURSE NUMBERS: The next statement(s) will be the specific course or courses identified by their Statewide Course Numbering System (SCNS) course number. For a course request, type the course number beginning in column one. For a sequence request, type the course numbers on separate lines, each beginning in column one. Up to seven courses can be identified for a sequence. These courses do not have to be discipline related.

AREAS STATEMENT: The AREAS statement follows the requested course number(s) and is optional. The AREAS statement is the key to identifying related SUS coursework. CEP uses the SCNS Taxonomy to identify related coursework. The SCNS Taxonomy is constructed in four levels:

AREA — groups of prefixes
PREFIX — course number alphabetic prefix
CENTURY — second digit of course number
DECADE — third digit of course number

The CEP user can specify up to ten areas considered to be related to the requested course or sequence of courses taken at the community college. The SCNS Areas are identified by Discipline Area Codes which are reproduced in Appendix D. In parentheses after the area code, a "magnification level" may be specified. The magnification level instructs CEP to aggregate the related SUS coursework performance statistics at the Area (A), Prefix (P), Century(C), or Decade (D) level. If the magnification level is omitted, CEP will assume that the magnification level would be Area.

The use of the Decade (D) magnification level should be limited to cases in which less detailed levels have been inadequate. The following AREAS statement declares three SCNS areas with magnification levels being either implied or explicitly declared.

AREAS 34(P) 38 44(C)

The CEP Keyword AREAS must begin in column one. The SCNS area codes follow the keyword with one or more separator blanks. If a magnification level is specified, the left parenthesis must immediately follow the area code without any spaces. The entire AREAS statement must be contained on one line.

END STATEMENT: After the AREAS statement (or the last course number if the AREAS statement is omitted), another request can begin or the CEP END statement is entered beginning in column one. There is no known limit to the number of requests that can be made in one run, but the CEP system has only been tested with a maximum of ten requests. The cost of running a CEP job has been estimated at $4.00 to $10.00 per request when using low priority (CLASS = 2). This of course varies depending on options selected, areas declared and magnification levels specified. It is recommended that new CEP users should limit the number of requests until they are familiar with the system.

CEP EXAMPLE: The following example of a set of CEP requests should illustrate the use of the CEP Command Language. This example is composed of the initial Term Parameters and five requests. When the AREAS statement is omitted, as in the ENC1101 request, only the CEP Profile Reports will be generated. Assume that all commands in the example begin in the first column.

```
BEGIN TERM FALL 1977
END TERM WINTER 80
COURSE BY INSTRUCTOR
CHM2045
AREAS 10(C)
COURSE BY UNIVERSITY INSTRUCTOR
CIS2321
AREAS 111(A) 112(C)
SEQUENCE BY UNIVERSITY
MAT1024
MAT1033
MAC2311
MAC1114
AREAS 87 42(C) 32(D)
COURSE
BEGIN TERM FALL 1980
END TERM WINTER 1981
ENC1101
COURSE
HUM1020
AREAS 10(P) 13 14 19
END
```

CEP OUTPUT

A sample of part of a CEP Profile Report and part of a CEP Performance Report is provided to illustrate the type of output generated by the Curriculum Evaluation Product.

ARTICULATION RESEARCH SYSTEM
CURRICULUM EVALUATION PRODUCT
SANTA FE COMMUNITY COLLEGE
PROFILE REPORT

COURSE: MAC2311

COMMUNITY COLLEGE TERMS:
FALL 1977 - WINTER 1980
UNIVERSITY TERMS:
FALL 1977 - SUMMER 1980

	NUMBER OF STUDENTS	AVERAGE SUS GPA	AVERAGE CC GPA
TOTAL POPULATION	315	2.46	3.07
UNIVERSITY			
FAMU	1	2.21	2.64
FAU	6	2.32	3.23
FSU	7	2.36	2.92
UF	285	2.46	3.01
USF	5	2.55	2.91
UCF	2	2.60	3.03
UWF	1	2.55	3.04
FIU	6	2.34	3.00

ARTICULATION RESEARCH SYSTEM
CURRICULUM EVALUATION PRODUCT
SANTA FE COMMUNITY COLLEGE
PERFORMANCE REPORT

COURSE: MAC2311

COMMUNITY COLLEGE TERMS:
FALL 1977 - WINTER 1980
UNIVERSITY TERMS:
FALL 1977 - SUMMER 1980

AREA: 68 PHYSICS

CC GRADE	UNIVERSITY	INSTRUCTOR	# OF STUDENTS	# OF SUS GRADES	AVG SUS GRADE	AVG SUS GPA	AVG CC GPA
A			25	77	2.37	2.53	3.22
		BURGESS J	1	4	2.03	2.19	3.01
		COLLINS S	5	20	2.87	2.73	3.22
		DAVIDSON	3	9	2.24	2.69	3.04
		ELLISON	1	2	1.50	1.40	2.09
		FRANKLIN	1	3	2.17	2.12	2.19
		HILLIARD	1	2	3.00	2.89	3.61
		MCCOY M	1	6	3.33	3.25	3.71
		NELSON J	2	8	3.00	2.80	3.68
		PATTON G	3	9	2.35	2.72	3.01

CEP OPERATING PROCEDURES

The ARS procedure "ARSCEP" will use the CEP Command Language and generate the requested CEP output. The following JOB illustrates the use of the ARSCEP catalogued procedure.

```
//jobname JOB (7000,1519,300,40,0),programmer,CLASS = 2
/*PASSWORD sequence,password
// EXEC ARSCEP,COLLEGE = SFCC,ACCOUNT = G0001519
//REQUEST DD *
.....put.....
.....CEP.....
...Command....
...Language...
....here.....
/*
```

For additional details of the ARSCEP procedure, refer to the ARS Catalogued Procedures chapter in either this manual or the ARS Technical Reference Manual.

SYSTEM OUTPUT

To simplify the operation of ARS, selected output has been predetermined to be of value to the user. This output, as described below, contains a significant amount of information and should be studied carefully. As you become familiar with the data and become more comfortable with the operation of ARS, you may want to modify this output or generate additional reports either on an "ad hoc" basis or as part of the system.

ARS PERIODIC REPORTS

With the addition of each new term of SUS data, the following five reports are automatically generated by ARS.

DATA EXCEPTION REPORTS: The Data Exception Report is a listing of those students who were identified from SUS data as having previously attended your community college but were not matched by social security number with your history files. This list by social security number and name requires no action on your part. You may choose to check a sampling of those students to determine the reasons for the failure to match.

Since the social security numbers were extracted from the SUS data, they should obviously match back with the SUS data without exception. Therefore, an exception list of students not matching with SUS data would probably indicate that the community college history data are not for the same term as the SUS data. This should not occur, however, if one term is added to the ARS Data Base at a time and the next batch of SUS data are not received from the Division of Community Colleges until the previous SUS data have been successfuliy added to the ARS Data Base.

TERM STUDENT LISTING: This report lists your former students who were in SUS during the term being added to the ARS Data Base. The list is sorted by reporting university and includes the following data elements:

SSN	Social Security Number
NAME	Name
URACE	University Race Category
USEX	University Sex Category
UDEGSGHT	University Degree Sought
UPGMCAT	University Program Category
UTOTGPA	University Cumulative GPA

TERM REPORT SERIES: As the title indicates, this is a series of reports that present selected profile information for those students who are being added to the data base. The first of the series is a set of frequency distribution tables for students who were in SUS during the term being added. The set includes the following tables, first for all students, then separately for each of the nine State Universities:

URPTINST	Reporting University
UPROG	University Program Area
UDEGSEHT	University Degree Sought
UDEGREE	University Degree Held
UCLASF	University Classification
UTERMN	Reasons for Termination
UDOE	University Date of Entry
URACE	University Race Category
USEX	University Sex Category
DEGREE	Community College Degree Awarded (Blank field indicates no degree)
UCITIZ	University Citizenship Category
FIRSTERM	First Term in Community College
LASTERM	Last Term in Community College
GRAD_TRM	Community College Graduation Term

The second set of reports lists the degrees granted by SUS during the term being added. The first table lists the total degrees in SUS. This is followed by separate tables for each of the nine universities.

The third set of reports lists the graduates for each of the nine universities and includes the following data elements:

SSN	Social Security Number
NAME	Name
DEGREES	University Degree Awarded
UTOTGPA	University Cumulative GPA
HEGIS	Graduation Program Area

The final report of the term report series lists term related performance data for students in SUS during the term being added to the data base. The first table is for all students and is followed by separate tables for each of the nine universities. The tables include the following data elements:

UTRHRS	Hours Transferred to University
TRHRS	Hours Transferred to Community College
UINSTHRS	University Hours for GPA
GPA	Cumulative Community College GPA
UTOTGPA	Cumulative University GPA

UPDATE STATISTICS REPORT: The Update Statistics Report includes four tables which reflect the number of records in the Articulation Research System, the number that are updated and the number that are added.

The first update table is for the Biographical Data Set. It includes the following information:

Master Records Read	The total number of biographical records in the data set prior to the term being added. There is one biographical record per student.
Transaction Records Read	The number of biographical records for students attending SUS during the term being added.
Master Records Updated	The number of biographical records updated with the new term's data.
Master Records Not Updated	The number of biographical records not updated since these students are not in SUS during the term being added.
New Records Added	The number of new biographical records (and therefore new stu dents) added to the data set.

The following three tables follow the same format. The College Course Data Set reflects the existing number of community college course records (Master Records Read) and the number of community college course records for students in the new term data. It also reflects the existing course records that are not updated (Master Records Updated and Not Updated) and it reflects the number of new records added. The University Course Data Set repeats this information for university course records. The University Term Data Set reflects the number of "term related" records (each student will have one record for each SUS Term attended). Existing, added and updated records are identified as above.

TIME SERIES REPORTS: This is a series of reports that include detailed and summary analysis of university and community college grade point averages for each SUS Term in the ARS Data Base. Comparisons are presented for each of the following group of students:

Total Population
First Term Students in SUS
Students Terminated from SUS
Students Granted Degrees in SUS

The analysis reflects the number of students, their SUS GPA and their community college GPA for each of the above populations. Comparisons are presented for the groups further sub-divided by reporting university, university program of study, race and sex. Additionally, for the students terminated from SUS, comparisons are presented based on the reason for termination. Finally, for those students granted degrees in SUS, comparisons are also presented based on their community college degree status.

PLOT/CHART RELATIVE TERM SERIES

The PLOT/CHART Relative Term Series is a set of special reports that reflects the Grade Point Average (GPA) of selected groups of students through up to six terms in the community college and the subsequent six terms in the university system.

These are "relative terms", meaning that the first community college term plotted is for students in the selected population during their first term in the community college. This holds through the community college terms so that the sixth term plotted includes those students who are in their sixth term without regard to the calendar timing for completion of these terms. This "relative term" peformance concept holds for the university terms.

The Plot Series includes a graph of the total population and of the following sub-groups plotted with the total population:

In-District High Schools
In-District/Out-of-District
Race
Sex
University Attended
University Program of Study

The Chart Series presents a frequency distribution bar chart for each community college and university term, reflecting the number of students by their Term GPA. Examples of the Plot Series (Figure 1) and Chart Series (Figure 2) are included on the following pages.

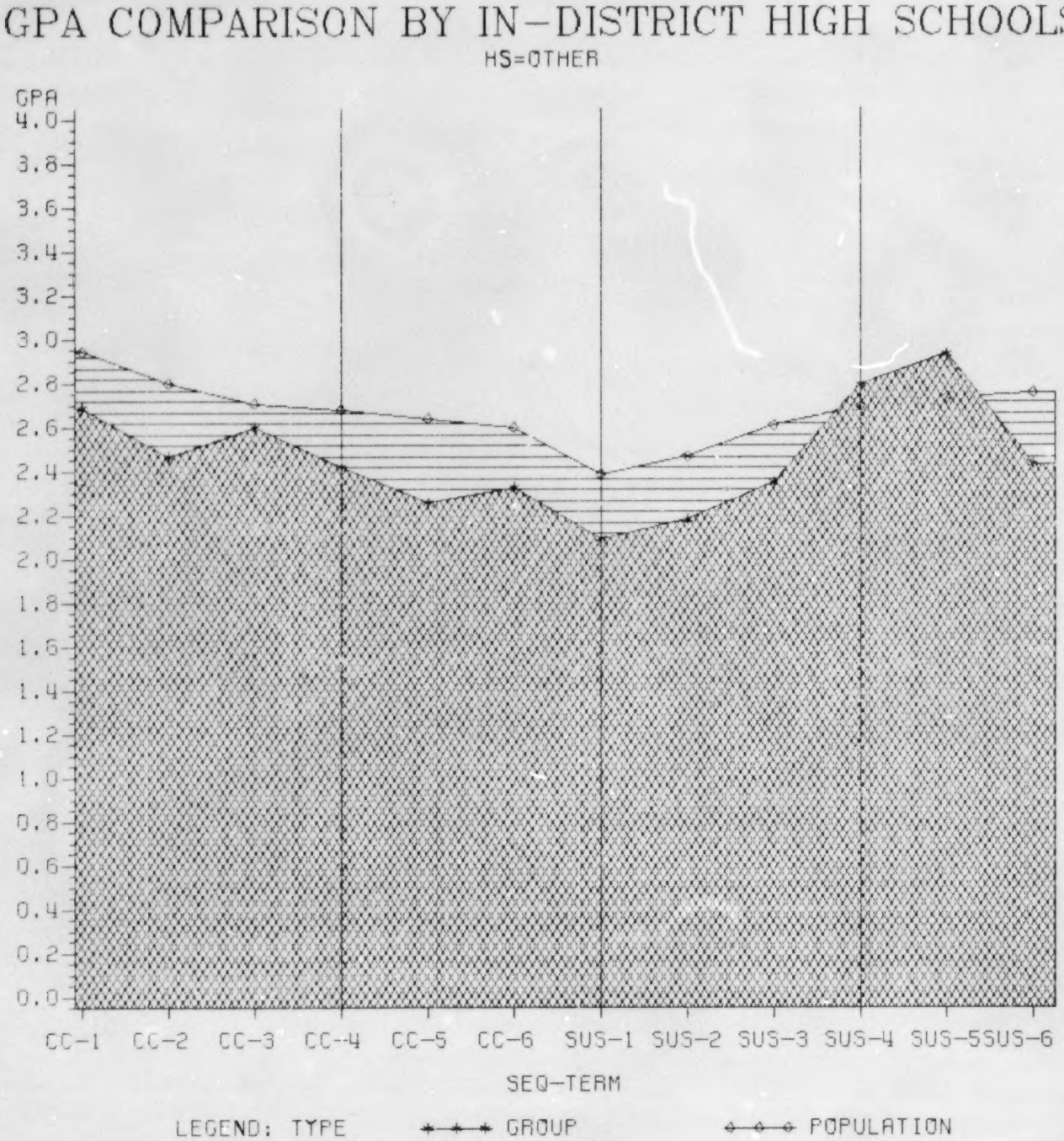

Figure 1: Plot Series Example

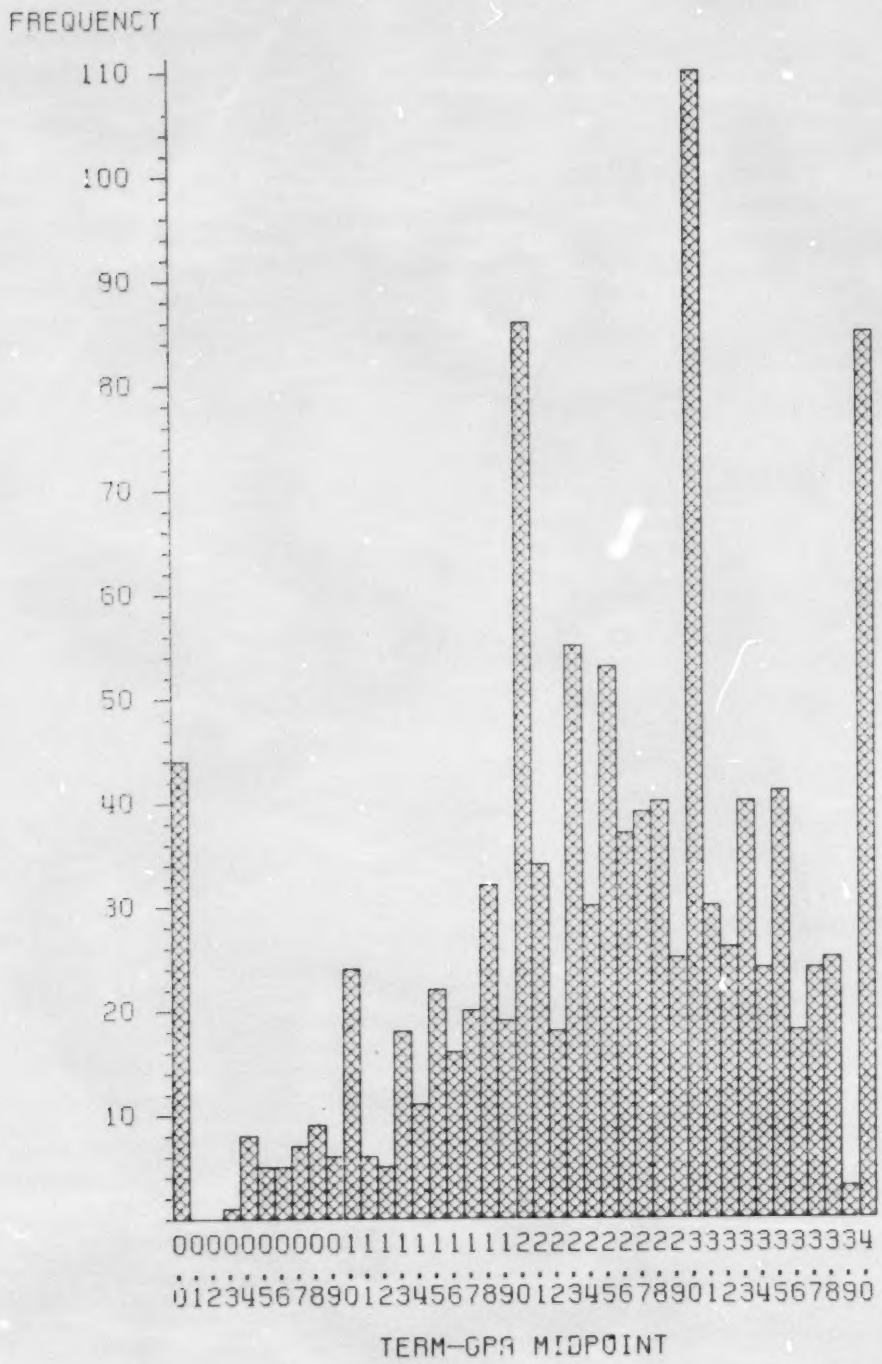

Figure 2: Chart Series Example

DATA BASE LISTING

The Data Base Listing is a special report that enables the user to generate, for a single student or a selected group of students, a "Transcript" that reflects their combined community college and SUS performance. The "Transcript" includes the following community college information:

1. Community College Demographics
   - Race
   - Sex
   - Birth Year
   - Citizenship
   - High School
   - University Date of Entry
   - Community College First Term
   - Community College Last Term
   - Transfer Hours to Community College
   - Transfer Hours to State University
   - Community College GPA
   - Community College Degree Attempted
   - Community College Degree Earned
   - Community College Graduation Term
   - Community College Credits Attempted
   - Community College Credits Earned
2. Community College Course Records
   - Term Attempted
   - Course Number
   - Course Section
   - Grade
   - Credits
   - Instruction

For each SUS Term, the following information is presented:

1. University Demographics
   - SUS Term
   - University Attending
   - SUS GPA
   - Degree Sought
   - Program of Study
   - Classification
   - Hours Towards Degree
2. University Course Records
   - Course Number
   - Credits
   - Grade
   - Course Discipline Area

AD HOC REPORTING

Although the Articulation Research System provides a large amount of information to the ARS user through its predesigned report series and the Curriculum Evaluation Product, there will be times when additional information is needed. In fact, almost all of the reports featured in ARS (including CEP), were originally developed as "ad hoc" reports. Through the use of the SAS language, the ARS user has the capability of answering any question related to the data contained in the ARS Data Base. This chapter will describe the use of SAS with the ARS Data Base and is not intended to be a SAS tutorial. For information on SAS courses or to order SAS manuals write or call

SAS Institute , Inc.
Box 8000
Cary, NC 27511-8000
(919)467-8000

The ARS procedure ARSRPT has already been described as being designed to allow the ARS user to submit ad hoc SAS programs. The SAS program can either reside in the ARS Program Library or be submitted directly. The ARSTOPDS procedure can be used to place a SAS program in the ARS Program Library.

As an example of using SAS for ad hoc reporting, the following SAS program will produce a frequency distribution table of the course numbers of the courses taken at the community college by the former community college students attending the State University System.

```
PROC FREQ DATA = ARS.CCRS;
TABLES COURSE;
TITLE COMMUNITY COLLEGE COURSES;
```

In the "DATA = " statement, the "ARS" refers to the ARS Data Base (DDname) and "CCRS" refers to the specific SAS data set within the data base. The "TABLES" statement identifies the data elements for which frequency distribution tables will be generated. A listing of the data elements in the ARS Data Base can be found in the Appendix section of this manual.

The next example will print the social security numbers of students who had an SUS cumulative GPA greater than 3.50 in the Fall Term 1980. These social security numbers could then be used with the DBLIST program to generate a transcript-like report for those students.

```
DATA SSN (KEEP = SSN);
SET ARS.UTERM;
 IF UTERM = 8042 AND
   UTOTGPA > 3.50;
PROC PRINT DATA = SSN;
TITLE 'Students in SUS with GPA > 3.50';
TITLE2 Fall Term 1980;
```

The first section reads the ARS.UTERM data set and selects the appropriate students. The social security numbers are put into a temporary data set called SSN. This new data set is then printed. The term codes used in ARS are described in Appendix A.

The previous examples have used only one ARS data set to produce the desired output. There are times when two or more data sets will be needed to retrieve the appropriate data from the ARS Data Base. The next example will use two data sets to find the average community college GPA for students who have an SUS GPA greater than 3.50 in Fall Term 1980.

```
DATA SSN (KEEP = SSN);
SET ARS.UTERM;
 IF UTERM = 8042 AND
   UTOTGPA > 3.50;
DATA GPA(KEEP = SSN GPA);
MERGE SSN(IN = SSN) ARS.BIOG(IN = BIOG);
 BY SSN;
 IF SSN AND BIOG;
PROC MEANS DATA = GPA N MEAN STD MIN MAX;
VAR GPA;
TITLE 'Students in SUS with GPA > 3.50';
TITLE2 Fall Term 1980;
TITLE3 Average Community College GPA;
```

This program begins by creating a social security number data set as in the previous example. These social security numbers are then merged with the biographical data set, which contains the students' community college GPA. The merge step will create a temporary data set, "GPA", of those students with records in both of the data sets being merged. The "PROC MEANS" procedure will calculate the indicated statistics from the GPA data set.

For an ARS user who has little or no programming experience, this ad hoc report programming may appear a bit overwhelming at first. By starting with very simple SAS procedures and referring to the SAS Introductory Guide, ad hoc reporting will become possible. The ARSRPT procedure will not allow the data in the ARS Data Base to be altered or destroyed, so the worse thing that can happen in attempting an ad hoc report is that the program won't work. If that happens just try again.

ARS CATALOGUED PROCEDURES

A set of catalogued Job Control Language procedures have been established for ARS to provide a "user friendly" environment for the ARS user. All routine processing for ARS can be performed using these procedures. Each of these procedures are described below.

ARS:	Adds a new term's data to the ARS Data Base.
ARSPSSN:	Puts a new SUS term's social security numbers on tape and or hard copy to be sent to the community college.
ARSRPT:	Can be used to produce the PLOTCHRT reports, DBLIST reports, or any reports generated by user supplied programs which use the ARS Data Base.
ARSUPD:	Used to make changes to the ARS Data Base. Specifically designed to be used with the CRSUPD program and the SEMESTER program, but can be used with any user supplied program to make changes to the ARS Data Base.
ARSLOADL:	Recreates the ARS Libraries from their backup library files on tape.
ARSBACKL:	Backs up the ARS Libraries in an unloaded sequential format on tape.
ARSTOTCP:	Transfers a program in the ARS Program Library or the ARS Documentation Library to TCP as an output (&JXXXXAA) TCP file.
ARSTOPDS:	Transfers a TCP file to the ARS Program Library or the ARS Documentation Library, either replacing an existing program (PDS member) or adding a new program.
ARSCEP:	Used to execute the Curriculum Evaluation Product.

The specific parameter options for each of these catalogued procedures are listed on the following pages.

ARS

```
// EXEC ARS,COLLEGE = college-prefix,PREFIX = nerdc-prefix,
//          ACCOUNT = nerdc-account,RECFM = record-format,
//          LRECL = record-length,BLKSIZE = block-size,
//          DEN = tape-density,FILE = file-number,
//          LABEL = label,UNIT = device,
//          TAPE2 = second-data-set-name,
//          RECFM2 = second-record-format,
//          LRECL2 = second-record-length,
//          BLKSIZ2 = second-block-size,
//          DEN2 = second-tape-density,
//          FILE2 = second-file-number,
//          FORMS = forms-code,GEN = sus-generation
```

college-prefix	The 3 or 4 character college prefix which is usually the official college initials. For example, the abbreviation for Santa Fe Community College is "SFCC". (NO DEFAULT, must be specified).
nerdc-prefix	The NERDC accounting prefix assigned to the community college. (DEFAULT = UF).
nerdc-account	The 8 digit NERDC account number used by the community college. The first digit must be converted to an alphabetic character corresponding to the digit's ordinal position. For example, the account number 70001519 would be stated as "G0001519". (NO DEFAULT, must be specified).
record-format	The record format for the history file. (DEFAULT = FB).
record-length	The logical record length (in bytes) of the community college history file used as input to ARS. (NO DEFAULT, must be specified).
block-size	The physical record length or block size (in bytes) of the community college history file used as input to ARS. (NO DEFAULT, must be specified).
tape-density	Tape recording density used for history file. (DEFAULT = 3).
file-number	The history file's position on the tape volume. (DEFAULT = 1).
label	The file label type for the history file. Use 'NL' for non-IBM generated community college history files and 'LTM' for IBM DOS generated community college history files. (DEFAULT = NL).
device	The name established by NERDC for the device type used for the history input data. (DEFAULT = TAPE9).
second-data-set-name	OS Data Set Name of second history file. If a second file is used code TAPE2 = . (DEFAULT = NULLFILE).
second-record-format	The record format for the second history file. (DEFAULT = FB).
second-record-length	The logical record length of the second file containing community college history data. (NO DEFAULT).
second-block-size	The physical record length or block size for the second file containing community college history data, if used. (NO DEFAULT).
second-tape-density	Tape recording density used for second history file. Should be same as first history file density. (DEFAULT = 3).
second-file-number	The second history file's position on the tape volume. (DEFAULT = 1).

forms-code	The 4 digit NERDC hardcopy output forms code used for ARS user output only. (DEFAULT = 0021, which specifies 11" x 14" white paper).
sus-generation	The relative generation of the SUS data GDG used for the ARS Data Base update. (DEFAULT = 0).

EXAMPLE:

```
// EXEC ARS,COLLEGE = SFCC,ACCOUNT = G0001519,
//              LRECL = 80,BLKSIZE = 3200
```

This example would add an SUS term's data to the ARS Data Base for Santa Fe Community College using a non-labeled (default LABEL = NL) community college history file tape with a logical record length (LRECL) of 80 bytes and a block size (BLKSIZE) of 3200 bytes using NERDC account number 70001519. User output will be printed using the default forms code of 2001.

RESOURCE REQUIREMENTS:

TAPE DRIVES: 2-TAPE9
CPU SECONDS: 200
OUTPUT LINES: 100K

ARSPSSN

```
// EXEC ARSPSSN,COLLEGE = college-prefix,PREFIX = nerdc-prefix,
//              ACCOUNT = nerdc-account,FORMS = forms-code
```

college-prefix	The 3 or 4 character college prefix which is usually the official college initials. (NO DEFAULT, must be specified).
nerdc-prefix	The NERDC accounting prefix assigned to the community college. (DEFAULT = UF).
nerdc-account	The 8 digit NERDC account number used by the community college. The first digit must be converted to an alphabetic character corresponding to the digit's ordinal position. (NO DEFAULT, must be specified).
forms-code	The 4 digit NERDC hardcopy output forms code, used for ARS user output only. (DEFAULT = 0001).

EXAMPLE:

```
// EXEC ARSPSSN,COLLEGE = SFCC,ACCOUNT = G0001519
```

This example would print the social security numbers of the former SFCC students in SUS . The social security numbers would be written onto a non-labeled, 9-track tape, if specified in the ARS program "PUTSSN", using the NERDC account 70001519 and selecting the default forms code which specifies standard paper stock.

RESOURCE REQUIREMENTS:

TAPE DRIVES: 1-TAPE9
CPU SECONDS: 29
OUTPUT LINES: 10K

ARSRPT

```
// EXEC ARSRPT,COLLEGE = college-prefix,PREFIX = nerdc-prefix,
//              ACCOUNT = nerdc-account,PROGRAM = pds-member,
//              FORMS = forms-code
```

college-prefix	The 3 or 4 character college prefix which is usually the official college initials. (NO DEFAULT, must be specified).
nerdc-prefix	The NERDC accounting prefix assigned to the community college. (DEFAULT = UF).
nerdc-account	The 8 digit NERDC account number used by the community college. The first digit must be converted to an alphabetic character corresponding to the digit's ordinal position. (NO DEFAULT, must be specified).
pds-member	The Program Library PDS member name to be executed. (NO DEFAULT, must be specified).
forms-code	The 4 digit NERDC hard copy output forms code used for the user output. (DEFAULT = 0001).

EXAMPLE:

```
// EXEC ARSRPT,COLLEGE = SFCC,ACCOUNT = G0001519,
//              PROGRAM = PLOTCHRT
```

This example will run the ARS PLOTCHRT program on the SFCC ARS Data Base using the NERDC account 70001519. The output will be printed on standard forms (0001).

RESOURCE REQUIREMENTS:

TAPE DRIVES: 1-TAPE9
CPU SECONDS: varies (29-200)
OUTPUT LINES: varies (10K-30K)

Additional memory may need to be allocated for the ARS DBLIST program. To increase the memory request, add the parameter "REGION = 500K" to the EXEC statement.

ARSUPD

```
// EXEC ARSUPD,COLLEGE = college-prefix,PREFIX = nerdc-prefix,
//              ACCOUNT = nerdc-account,PROGRAM = pds-member,
//              FORMS = forms-code
```

college-prefix	The 3 or 4 character college prefix which is usually the official college initials. (NO DEFAULT, must be specified).
nerdc-prefix	The NERDC accounting prefix assigned to the community college. (DEFAULT = UF).
nerdc-account	The 8 digit NERDC account number used by the community college. The first digit must be converted to an alphabetic character corresponding to the digit's ordinal position. (NO DEFAULT, must be specified).
pds-member	The Program Library PDS member name to be executed. (NO DEFAULT, must be specified).
forms-code	The 4 digit NERDC hard copy output forms code, used for the user output. (DEFAULT = 0001).

EXAMPLE:

```
// EXEC ARSUPD,COLLEGE = SFCC,ACCOUNT = G0001519,
//              PROGRAM = SEMESTER
```

This example will run the ARS SEMESTER program to convert the SUS quarter hours to semester hours in the SFCC ARS Data Base using the NERDC account 70001519. The output will be printed on standard forms (0001).

RESOURCE REQUIREMENTS:

TAPE DRIVES: 2-TAPE9
CPU SECONDS: 99
OUTPUT LINES: 20K

ARSLOADL

// EXEC ARSLOADL,COLLEGE = college-prefix,PREFIX = nerdc-prefix,
// ACCOUNT = nerdc-account,FORMS = forms-code

college-prefix	The 3 or 4 character college prefix which is usually the official college initials. (NO DEFAULT, must be specified).
nerdc-prefix	The NERDC accounting prefix assigned to the community college.
nerdc-account	The 8 digit NERDC account number used by the community college. The first digit must be converted to an alphabetic character corresponding to the digit's ordinal position. (NO DEFAULT, must be specified).
forms-code	The 4 digit NERDC hardcopy output forms code used for ARS user output only. (DEFAULT = 0001).

EXAMPLE:

// EXEC ARSLOADL,COLLEGE = SFCC,ACCOUNT = G0001519

This example will load the three ARS Libraries from the Library Backup tape for SFCC using the NERDC account 70001519.

RESOURCE REQUIREMENTS:

TAPE DRIVES: 1-TAPE9
CPU SECONDS: 29
OUTPUT LINES: 20K

ARSBACKL

```
// EXEC ARSBACKL,COLLEGE = college-prefix,PREFIX = nerdc-prefix,
//              ACCOUNT = nerdc-account,FORMS = forms-code
```

college-prefix	The 3 or 4 character college prefix which is usually the official college initials. (NO DEFAULT, must be specified).
nerdc-prefix	The NERDC accounting prefix assigned to the community college. (DEFAULT = UF).
nerdc-account	The 8 digit NERDC account number used by the community college. The first digit must be converted to an alphabetic character corresponding to the digit's ordinal position. (NO DEFAULT, must be specified).
forms-code	The 4 digit NERDC hardcopy output forms code used for ARS user output only. (DEFAULT = 0001, which specifies 11" x 14" standard paper stock).

EXAMPLE:

```
// EXEC ARSBACKL,COLLEGE = SFCC,ACCOUNT = G0001519
```

This example will create unloaded backup copies of the SFCC ARS Libraries on the Library Backup tape using the NERDC account 70001519.

RESOURCE REQUIREMENTS:

TAPE DRIVES: 1-TAPE9
CPU SECONDS: 29
OUTPUT LINES: 20K

ARSTOTCP

```
// EXEC ARSTOTCP,COLLEGE = college-prefix,PREFIX = nerdc-prefix,
//              ACCOUNT = nerdc-account,LIBRARY = pds-name,
//              PROGRAM = pds-member
```

college-prefix	The 3 or 4 character college prefix which is usually the official college initials. (NO DEFAULT, must be specified).
nerdc-prefix	The NERDC accounting prefix assigned to the community college. (DEFAULT = UF).
nerdc-account	The 8 digit NERDC account number used by the community college. The first digit must be converted to an alphabetic character corresponding to the digit's ordinal position. (NO DEFAULT, must be specified).
pds-name	The name of the ARS Library from which the program will be retrieved. Must be either "ARSPGMS" or "ARSDOC". (DEFAULT = ARSPGMS).
pds-member	The name of the Library PDS member to be copied to TCP. (NO DEFAULT, must be specified).

EXAMPLE:

```
EXEC ARSTOTCP,COLLEGE = SFCC,ACCOUNT = G0001519,
//              PROGRAM = CONVSUS
```

This example will copy the ARS SAS program, "CONVSUS", from the ARS Program Library, "ARSPGMS", to TCP using the SFCC NERDC account 70001519.

RESOURCE REQUIREMENTS:

TAPE DRIVES: none
CPU SECONDS: 2
OUTPUT LINES: 10K

ARSTOPDS

```
// EXEC ARSTOPDS,COLLEGE = college-prefix,PREFIX = nerdc-prefix,
//              ACCOUNT = nerdc-account,LIBRARY = pds-name,
//              PROGRAM = pds-member
//PROGRAM DD *
/*INCLUDE tcp-file-name
```

college-prefix	The 3 or 4 character college prefix which is usually the official college initials. (NO DEFAULT, must be specified).
nerdc-prefix	The NERDC accounting prefix assigned to the community college. (DEFAULT = UF).
nerdc-account	The 8 digit NERDC account number used by the college. The first digit must be converted to an alphabetic character corresponding to the digit's ordinal position. (NO DEFAULT, must be specified).
pds-name	The name of the ARS Library into which the program will be stored. Must be either "ARSPGMS" or "ARSDOC". (DEFAULT = ARSPGMS).
pds-member	The name of the Library PDS Member in which the TCP file program will be stored. The member can be an existing PDS member, in which case the member will be replaced or the member can be a new PDS member, in which case the member will be added to the Library PDS. (NO DEFAULT, must be specified).
forms-code	The 4 digit NERDC hardcopy output forms code used for ARS user output only. (DEFAULT = 0001)
tcp-file-name	The name of the TCP file which contains the program which is to be copied into the indicated Library PDS.

EXAMPLE:

```
// EXEC ARSTOPDS,COLLEGE = SFCC,ACCOUNT = G0001519,
//              PROGRAM = CONVSUS
//PROGRAM DD *
/*INCLUDE CONVSUS2
```

This program will replace the existing ARS SAS program, "CONVSUS" in the SFCC Program Library, "ARSPGMS", with the TCP file, "CONVSUS2", using the NERDC account 70001519.

RESOURCE REQUIREMENTS:

TAPE DRIVES: none
CPU SECONDS: 2
OUTPUT LINES: 10K

ARSCEP

```
// EXEC ARSCEP,COLLEGE = college-prefix,PREFIX = nerdc-prefix,
//                ACCOUNT = nerdc-account,FORMS = forms-code,
//                COPIES = number-of-copies,SCNS = scns-data-set-name
//REQUEST DD *
 — CEP COMMANDS —
```

college-prefix	The 3 or 4 character college prefix which is usually the official college initials. (NO DEFAULT, must be specified).
nerdc-prefix	The NERDC accounting prefix assigned to the community college. (DEFAULT = UF).
nerdc-account	The 8 digit NERDC account number used by the community college. The first digit must be converted to an alphabetic character corresponding to the digit's ordinal position. (NO DEFAULT, must be specified).
forms-code	The 4 digit NERDC hard copy output forms code, used for the user output. (DEFAULT = 0041).
number-of-copies	Number of copies of the CEP user output desired. (DEFAULT = 1).
scns-data-set-name	The OS Data Set Name for the SCNS Taxonomy Data Base. (DEFAULT is SFCC version of SCNS Taxonomy).

EXAMPLE:

```
// EXEC ARSCEP,COLLEGE = SFCC,ACCOUNT = G0001519
//REQUEST DD *
BEGIN TERM FALL 1979
END TERM WINTER 1980
COURSE
MAC2311
END
```

This program will produce a CEP Profile report for all students who had taken Calculus I at SFCC in either Fall 1979 or Winter 1980 and will reflect those student's overall performance in the State University System by various cross-sectional groups. Complete documentation for the CEP Command Language is provided earlier in this manual.

RESOURCE REQUIREMENTS:

TAPE DRIVES: 2-TAPE9
CPU SECONDS: 300
OUTPUT LINES: varies (10K-50K)

Appendix A
STUDENT HISTORY DATA ELEMENTS

INTRODUCTION

The following biographical and course data elements were developed as a model for the community college input data for the Articulation Research System. The specific data elements and coding systems for individual versions of the Articulation Research System may vary from this model.

By becoming familiar with the data elements in your system, you will better understand the output reports from ARS and will be capable of designing ad hoc reports which make use of the data elements in the ARS Data Base.

BIOGRAPHICAL DATA ELEMENTS

COMMUNITY COLLEGE
(4 byte character field)
Abbreviation of community college name.

DBCC — Daytona Beach Community College
FJC — Florida Junior College at Jacksonville
HCC — Hillsborough Community College
PBJC — Palm Beach Junior College
SECC — Seminole Community College
SFCC — Santa Fe Community College
VCC — Valencia Community College

CARD CODE
(4 byte character field)
"BIOG" is keyed to indicate biographical history information.

SOCIAL SECURITY NUMBER
(9 byte numeric field)
Student's Social Security Number.

FIRST TERM
(4 byte numeric field)
Student's first term at community college . Term code is YYXX where YY is last two digits of year and XX is Term code as follows:

13 — Winter
24 — Spring
31 — Summer
42 — Fall

Other coding structures can be used to indicate TERM as long as the coding system is supplied.

LAST TERM
(4 byte numeric field)
Student's last term at the community college. Term code is the same as #4 above.

GPA
(3 byte numeric field)
Student's cumulative grade point average at the community college. The GPA should be keyed in a XDD format, where X represents a numeric integer and DD represents two decimal places.

TRANSFER HOURS
(4 byte numeric field)
The number of semester credit hours transferred to the community college. Transfer hours should be keyed in a XXXD format, where X represents numeric integers and D represents a decimal place.

DEGREE ATTEMPTED

(2 byte character field)

The type of degree that the student attempted at the community college. Degree should be coded with 'AA' for Associate of Arts degree, 'AS' for Associate of Science degree and 'AP' for Associate of Applied Science degree.

PROGRAM ATTEMPTED

(4 byte numeric field)

The particular program of study for the type of degree that the student attempted at the community college. Program codes can be HEGIS discipline code, an institution code or can be left blank if not appropriate.

CREDITS ATTEMPTED

(3 byte numeric field)

The number of semester credit hours that the student attempted at the community college. Credits hours can be coded in a XXX format where X represents a numeric digit. If left blank, the credits attempted can be computed from the Student Course Records.

CREDITS EARNED

(3 byte numeric field)

The number of semester credit hours earned by the student at the community college. Credit hours can be coded in a XXX format where X represents a numeric digit. If left blank, the credits earned can be computed from the Student Course Records.

DEGREE EARNED

(2 byte character field)

The type of degree that the student earned at the community college. Degree should be coded with 'AA' for Associate of Arts degree, 'AS' for Associate of Science degree and 'AP' for Associate of Applied Science degree.

DEGREE PROGRAM

(4 byte numeric field)

The particula program of study for the type of degree that the student earned at the community college. Program codes can be HEGIS discipline code, an institution code or can be left blank if not appropriate.

GRAD TERM

(4 byte numeric field)

Term in which the student earned the degree at the community college. Term code is the same as #4 above.

HIGH SCHOOL

(5 byte numeric field)

Numeric indicator of the student's high school. Code can be selected from High School Code List. Alternate numeric code or character abbreviations can be substituted.

IMPORTANT NOTE

ALL CHARACTER FIELDS SHOULD BE LEFT-JUSTIFIED AND ALL NUMERIC FIELDS SHOULD BE RIGHT-JUSTIFIED.

COURSE RECORD DATA ELEMENTS

COMMUNITY COLLEGE
(4 byte character field)
Abbreviation of community college name.

CARD CODE
(4 byte character field)
Must be 'CCRS' to indicate college course history information.

SOCIAL SECURITY NUMBER
(9 byte numeric field)
Student's social security number.

TERM
(4 byte numeric field)
Community college term in which the student took the course. Term code is YYXX where YY is last two digits of year and XX is Term code as follows:

13 — Winter
24 — Spring
31 — Summer
42 — Fall

Other coding structures can be used to indicate term.

COURSE NUMBER
(8 byte character field)
Common Course Number of course taken with 3 character prefix, 4 character number and 1 character lab indicator (L, C, or blank).

SECTION
(3 byte character field)
Course section number or indicator.

COURSE CREDITS
(3 byte numeric field)
The number of semester credit hours for which the course was offered.

CREDITS EARNED
(3 byte numeric field)
The number of semester credit hours earned by the student for the course.

GRADE
(2 byte character field)
The grade received by the student for the course.

DEPARTMENT
(6 byte alphanumeric field)
Community College department offering the course taken. Code structure can be HEGIS discipline code, ICS discipline code, institutional code or omitted.

INSTRUCTOR
(9 byte alphanumeric field)
Instructor who taught the course. The field can be instructor's social security number, abbreviation of instructor's name or omitted.

IMPORTANT NOTE
ALL CHARACTER FIELDS SHOULD BE LEFT-JUSTIFIED AND ALL NUMERIC FIELDS SHOULD BE RIGHT-JUSTIFIED.

Appendix B
OPERATING ARS THROUGH TCP

The operating procedures presented here assume that a college has a completed ARS system and that personnel have experienced a brief explanation or demonstration of the system. The operation of the system is meant to be well within the grasp of personnel who do not have a data processing background. As noted earlier, the establishment of an ARS system requires publications other than this manual and requires personnel with data processing experience.

ACCESSING NERDC

Access to the Northeast Regional Data Center requires an appropriate modem (or acoustic coupler) and an account with access number and password. Dial the appropriate telephone number and you are ready to sign on to your account.

In the following procedures, the "user entry", the items you input through your terminal, are reflected in lower case letters. The "terminal response" is noted in upper case letters. After each line of user entry is completed, you should issue a carriage return by pressing the "Return" key on the terminal. The absence of a terminal response indicates that you should continue to the next user entry.

SIGNING ON

Successful connection with NERDC will usually be indicated by a "connect light" on your modem, acoustic coupler or terminal. At that point, you should proceed as follows:

1. pp
   ENTER T FOR TCP, C FOR CICS, E FOR EXEC-ATS, L FOR APL, O FOR TSO
2. t
   PROCEED
3. /id xxxxxxxx (xxxxxxxx is your NERDC access number)
   ENTER PASSWORD
4. (password) (enter your NERDC Password)
   THIS IS TERMINAL XXX IN MVS

TERMINAL CONTROL PROGRAM (TCP)

In the process of signing on, you indicated through the terminal that you would be using TCP. Sections of this Appendix will lead you, step by step, through each ARS procedure. This section will explain selected TCP functions that you will use in these procedures.

TCP has the capability of storing files that will be of use in the future. Selected files have been created and saved as part of the establishment of your ARS system. You may choose to save other files as you operate the system. Files will also be created as output from certain ARS procedures.

To determine what TCP files are currently saved in your TCP storage area, use the following command:

/flist

ARSCEP	ARS	ARSPSSN	CHANGES
ARSLOADL	ARSBACKL	SEMESTER	CRSUPD
ARSTOTCP	ARSTOPDS	REQUEST	DBLIST
SSN	PLOTCHRT	&J1234AA	&J1234AB

The use of these files has been thoroughly explained in this User's Manual and in the ARS Technical Reference Manual. The purpose of this appendix is to explain their operation under TCP. Six of the files, ARS, ARSPSSN, ARSLOADL, ARSBACKL, ARSTOTCP and ARSTOPDS are not discussed here but have been explained in the manuals.

&J1234AA and &J1234AB are examples of file names for job output that has been returned to your TCP storage area. These files will be automatically released from the storage area after five days.

There are selected TCP commands that will be useful or necessary in the TCP operation of ARS. For a complete description of TCP, refer to NERDC's Time-Sharing User's Manual.

/id xxxxxxxx

This command precedes the access number and was demonstrated in the discussion of the sign on procedures. Note that all TCP commands are preceded by a slash (/).

/flist

This command, demonstrated above, lists the files in your TCP storage area.

/load file-name

This loads a copy of the specified TCP file into the TCP work space after erasing the contents of the work space. Note that this is a copy of a file from the TCP storage area. You may now list the contents of the file, make alterations, etc., without affecting the file in your storage area. The contents of the work space are erased when you sign off from TCP.

/list

This will list the contents of your work space.

/erase

This will erase the contents of your work space.

/save file-name

This will save a copy of your work space in a permanent TCP file using the indicated file name (file-name). A "/flist" command would show this file added to your storage area.

/resave file-name

This saves a copy of the work space into a permanent TCP file that already exists. The previous contents of the specified TCP file will be erased.

/release file-name

This will release or delete the named file from the TCP storage area. Use this command with caution. Once the file is released, you do not have the option of changing your mind.

/print file-name

This will print the contents of the named file from the TCP storage area. This command will primarily be used to print ARS user output which is returned to the terminal. Printing may be stopped at any time by pressing the "BREAK" key on your terminal. You will remain in TCP and should proceed to other jobs or sign-off (/end).

/set width = 132

This command is used in conjunction with the print command to specify the line width of the output to be printed.

/rje

(Remote Job Entry). This command submits the job (file) in your work space to NERDC for batch processing. The terminal will respond as follows:

JOB SUBMISSION BEGINNING
JOB number, name
JOB SUBMISSION COMPLETE

The job number and job name should be carefully recorded since they will be used to display the job's status (/djob) and to print the job's output (/print).

/djob jobname

This command is used to determine the status of a job that has been submitted for batch processing. To interpret the job status, refer to the NERDC Time-Sharing Manual. The response JOB NOT FOUND usually indicates that the job has been completed (or that you entered the job name incorrectly).

/end

This command results in your exiting TCP. The terminal will respond by listing the charges you accrued during the period that you were signed on. These charges will not include charges for batch jobs you submitted. Failure to sign off from TCP may result in your being charged for TCP usage even when you are not connected.

Certain commands, /alter, /insert and /replace are available to modify the contents of a file in your work space. Refer to the NERDC Time-Sharing Manual for complete instructions on their use.

ARS PROCEDURES

This section will give you specific steps to follow for various ARS procedures. Refer to the body of this user's manual for a full discussion of the procedures.

THE PLOT/CHART RELATIVE SERIES:

1. Load the PLOTCHRT file into the work space.
2. List the contents of the work space.
3. Submit the job for batch processing (/rje). (record the job number and job name).
4. Check the job status (/djob). This step is not essential but will assure you that your job submission was successful.

The output from this procedure will be returned to your TCP storage area as two TCP files, &JxxxxAA and &JxxxxAB, where xxxx is the job number from step 3 above. The &JxxxxAA file contains the JCL and SAS code from the job. The &JxxxxAB file contains the job's user output. To print this output on your terminal:

1. Set the line width to 132 characters.
2. Print the file &JxxxxAB using /print.

DATA BASE LISTING:

1. Erase the contents of the work space to insure that the work space is empty before going to the next step.
2. Enter 9-digit social security numbers to identify students for DBLIST (simulated transcript) printing. The social security numbers start in the first column with leading zeros included. Press the RETURN key after each social security number.
3. List the contents of the work space. Check the list of social security numbers for accuracy.
4. Resave the work space as the TCP file "SSN".

These social security numbers are now stored in the TCP file SSN. The DBLIST procedure, submitted as follows, will access this TCP file to receive the numbers. This same procedure will be used in other ARS procedures. The following steps will submit the job for processing:

1. Load the DBLIST file into your work space.
2. List the contents of the work space.
3. Submit the job for batch processing.
4. Check the job status.

As with the PLOTCHRT procedure, the DBLIST output is returned to you TCP storage area as a TCP file. To print this output on your terminal, use the following procedure:

1. Print the file &JxxxxAB. It is not necessary to use the SET command since DBLIST output is formatted for 80 characters, the default width.

A TCP storage file may contain a maximum of 3000 lines of output (494 lines for a user saved file). This places a restriction on the number of "transcripts" that may be generated by one DBLIST job submission.

UPDATING COMMUNITY COLLEGE COURSE NUMBERS:

1. Erase the contents of the work space.
2. Enter a listing of the old and new course numbers. The course numbers should be entered with the old course number beginning in column 1 and the new course number beginning in column 10.
3. List the contents of the work space. Check the course numbers for accuracy.
4. Resave the work space as the TCP file CHANGES.
5. Load the TCP file CRSUPD.
6. List the contents of the work space.
7. Submit the job for batch processing.
8. Check the job status.

The output from this procedure will reflect the course updates that have been completed. This should be reviewed carefully to insure that the updates were accomplished as intended.

The output is returned to the TCP storage area as a single TCP file, &JxxxxAA. To print the output:

1. Set the line width to 132 characters.
2. Print the file, &JxxxxAA.

CONVERTING SUS QUARTER HOURS TO SEMESTER HOURS: This program must be run after the Summer 1981 SUS data have been added to the ARS Data Base and before the Fall 1981 data are added. The program will be run only one time.

1. Load the SEMESTER TCP file into the workspace.
2. List the contents of the work space.
3. Submit the job for batch processing.
4. Check the job status.

The output from this procedure will be JCL and SAS logs which may have little meaning to the user. While the program has been thoroughly tested, it would still be advisable to have the output reviewed by someone familiar with OS/MVS JCL and with SAS.

The output is returned to the TCP storage area as a single TCP file, &JxxxxAA. To print the output:

1. Set the width to 132 characters.
2. Print the file &JxxxxAA.

After assuring yourself that the SEMESTER procedure has converted quarter hours to semester hours, the TCP file should be released from the storage area.

CURRICULUM EVALUATION PRODUCT: The Curriculum Evaluation Product is thoroughly explained in the body of this user's manual. After determining the particular CEP requests desired, the "command language" is keyed into your terminal:

1. Erase the contents of the work space.
2. Enter the CEP Command Language.
3. Resave the TCP file, REQUEST.

With the command language now in a TCP file, the CEP procedure can be submitted as follows:

1. Load the ARSCEP file into the work space.
2. List the contents of the work space.
3. Submit the job for batch processing.
4. Check the status of the job.

The output from this procedure is returned to your TCP storage area as two TCP files, &JxxxxAA and &JxxxxAB. To print this output on your terminal:

1. Print the TCP file &JxxxAB.

As with DBLIST, the 3000 line maximum for a TCP output file places a restriction on the number of CEP requests that may be generated by one job submission.

Appendix C
ARS DATA BASE

The ARS Data Base is composed of four SAS data sets. The data elements in each of these data sets are described in this appendix. Since each individual community college using ARS can customize their data base to meet their particular needs, the community college data elements listed reflect those elements selected for the ARS Model. For each data element, the SAS variable name is given followed by a description of the element.

BIOGRAPHICAL DATA SET (BIOG)

CRED_ATT	Community College Credits Attempted
DEG_ATT	Community College Degree Attempted
DEGREE	Community College Degree Earned
FIRSTERM	First Term at Community College
GPA	Community College GPA
GRAD_TRM	Community College Graduation Term
HIGHSCHL	High School HOURS Hours Earned at Community College
LASTERM	Last Term at Community College
NAME	Student's Name
SSN	Social Security Number
TRHRS	Hours Transfered to Community College
UBRTHYR	Student's Birth Year
UCITIZ	Citizenship
UCLEPE	CLEP English Credit
UCLEPH	CLEP Humanities Credit
UCLEPM	CLEP Mathematics Credit
UCLEPNS	CLEP Natural Science Credit
UCLEPSB	CLEP Subject Exams Credit
UCLEPSS	CLEP Social Science Credit
UCOUNTY	County of Residence
UDEPTCR	SUS Department Exam Credit
UDOE	University Date of Entry
UDUALID	SUS Dual Enrollment
UHISCHL	High School
UHROURDG	Hours Applicable to SUS Degree
UINSTHRS	SUS Hours for GPA
ULSTINST	Last Institution
UOTHCR	Other Test Credit
URACE	Race
USEX	Sex
USTATE	State of Residence
USTYPE	Student Type at Date of Entry
UTOTGRPT	Total SUS Grade Points
UTRHRS	Hours Transfered to SUS

COMMUNITY COLLEGE COURSE DATA SET (CCRS)

CRED ERN	Credits Earned
CREDITS	Course Credits
COURSE	Course Number
DEPT	Course Department
GRADE	Course Grade
INSTR	Course Instructor
SECT	Course Section
SSN	Social Security Number
TERM	Community College Term

UNIVERSITY TERM DATA SET (UTERM)

SSN	Social Security Number
UCLASF	University Classification
UCRSLD	University Course Load
UDEGREE	Highest Degree Held
UDEGSGHT	University Degree Sought
UDGCAT1	1st Degree Program
UDGCAT2	2nd Degree Program
UDGCAT3	3rd Degree Program
UDGR1	1st Degree Granted
UDGR2	2nd Degree Granted
UDGR3	3rd Degree Granted
UHROURDG	Hours Toward SUS Degree
UPGMCAT	SUS Program Category
UPROG	SUS Program Area
URPTINST	Reporting University
UTERM	University Term
UTERMN	University Termination
UTOTGPA	SUS Cumulative GPA
UTRMGPE	Term Grade Points Earned
UTRMHRS	Term Hours for GPA
UTRMHRSE	Term Credit Hours Earned

UNIVERSITY COURSE DATA SET (UCRS)

COURSE	Course Number
CREDITS	Course Credit Hours
GRADE	Course Grade
PGMCATG	Course Program Category
SSN	Social Security Number
UTERM	University Term

Appendix D
SCNS DISCIPLINE AREAS

The following Statewide Course Numbering System Discipline Areas and corresponding codes are to be used with the Curriculum Evaluation Product Command Language to identify related SUS course-work taken by former community college students. Although the taxonomy is by no means static, the code listing can provide the ARS user with a fairly accurate reference. To obtain a current taxonomy listing consult your college's SCNS Liaison Officer.

AREA	TITLE
1	AGRICULTURE
3	ANTHROPOLOGY
4	ARCHITECTURE
5	AMERICAN AND AFRO-AMERICAN STUDIES
6	ART
7	BIOLOGICAL SCIENCE
8	ACCOUNTING
10	COMPUTER SCIENCES
11	CRIMINAL JUSTICE
12	DANCE
13	DENTAL ASSISTANT
14	DENTAL HYGIENE
15	DENTAL LABORATORY TECHNOLOGY
16	DENTISTRY
18	ECONOMICS
19	EDUCATION, ADMINISTRATION AND SUPERVISION
20	EDUCATION, EXCEPTIONAL CHILD
21	EDUCATION FOUNDATIONS
22	EDUCATION, GUIDANCE & COUNSELING
23	SCIENCE EDUCATION
24	EDUCATION SYSTEMS
25	EDUCATION: VOCATIONAL INDUSTRIAL ARTS
26	ELECTROENCEPHALOGRAPHIC TECHNOLOGY
27	EMERGENCY MEDICAL TECHNOLOGY
28	ENGINEERING I
29	ENGINEERING II
30	ENGINEERING III
31	ENGINEERING IV
32	ENGINEERING TECHNOLOGIES
33	ENGLISH LANGUAGE & LITERATURE
34	GEOGRAPHY
35	GERONTOLOGY
37	HISTORY
38	HOME ECONOMICS
40	INTERDISCIPLINARY STUDIES
41	LAW
42	LIBRARY SCIENCE
43	MASS COMMUNICATION
44	MATHEMATICS
45	MEDICAL ASSISTING
48	MEDICAL RECORDS
49	MEDICAL LABORATORY SCIENCE
50	MEDICINE
51	MENTAL HEALTH TECHNOLOGY
52	MILITARY SCIENCE
53	FOREIGN AND BIBLICAL LANGUAGES AND LITERATURE

54	FUNERAL SERVICES
55	MUSIC GENERAL
56	NURSING
57	OCCUPATIONAL THERAPY
58	OCEANOGRAPHY
59	OPERATING ROOM TECHNOLOGY
60	OPTICIANARY DISPENSING TECHNOLOGY
61	OPTOMETRIC TECHNICIAN SCIENCE
62	PHARMACY
63	PHILOSOPHY
64	PHYSICAL EDUCATION
65	CHEMISTRY
66	GEOLOGY
67	METEROLOGY
68	PHYSICS
69	PHYSICAL THERAPY
70	PHYSICIAN'S ASSISTANT
71	POLITICAL SCIENCE
72	PSYCHOLOGY
73	RADIOLOGIC AND NUCLEAR MEDICINE TECHNOLOGY
74	RELIGION
75	RESPIRATORY THERAPY
76	SOCIAL WORK
77	SOCIOLOGY
78	SPEECH COMMUNICATION
79	SPEECH PATHOLOGY & AUDIOLOGY
80	THEATRE ARTS
82	URBAN & REGIONAL PLANNING
83	VETERINARY MEDICINE
84	HEALTH CARE ADMINISTRATION
85	ADULT EDUCATION
86	INTERIOR DESIGN
87	BUILDING CONSTRUCTION
88	TRANSPORTATION
89	WOMEN'S STUDIES
90	MENTAL RETARDATION
91	HUMAN SERVICES
92	MUSIC APPLIED
93	LANGUAGE ARTS AND ENGLISH EDUCATION
94	SOCIAL STUDIES EDUCATION
96	LEISURE
97	STUDENT DEVELOPMENT
98	COMMUNICATIONS
99	ORAL INTERPRETATION
100	COOPERATIVE EDUCATION
101	HEALTH, LEISURE & PHYSICAL EDUCATION
102	SOCIAL SCIENCES, INTERDISCIPLINARY
103	BIOCHEMISTRY
104	CLASSICAL AND ANCIENT STUDIES
105	AFRICAN STUDIES
106	ASIAN STUDIES
107	EUROPEAN STUDIES
108	COMPARATIVE POLICY STUDIES
109	REAL ESTATE

110	RISK MAMAGEMENT AND INSURANCE
111	QUANTITATIVE METHODS IN BUSINESS
112	BUSINESS LAW
113	INTERDISCIPLINARY SCIENCE
114	STATISTICS
115	MATHEMATICS EDUCATION
116	LATIN AMERICAN STUDIES
117	HOTEL AND RESTAURANT MANAGEMENT
118	SECRETARIAL SCIENCE
119	DENTAL SUPPORT
120	CARDIOPULMONARY TECHNOLOGY
121	ARABIC LANGUAGE AND LITERATURE
122	HEBREW LANGUAGE AND LITERATURE
124	SANSKRIT
125	PORTUGUESE LANGUAGE AND LITERATURE
126	ORIENTAL LANGUAGE AND LITERATURE
127	LINGUISTICS
128	AERONAUTICAL SCIENCE
129	ENGLISH AS A SECOND LANGUAGE
130	BANKING
131	FINANCE
132	FIRE SCIENCE
133	FRENCH LANGUAGE AND LITERATURE
134	GERMAN AND GERMANIC LANGUAGE AND LITERATURE
135	HEALTH EDUCATION AND SAFETY
136	HUMANITIES
137	ITALIAN LANGUAGE AND LITERATURE
138	LEGAL ASSISTANT
139	MANAGEMENT
140	MARKETING
141	NUTRITION
142	PUBLIC ADMINISTRATION
143	SLAVIC LANGUAGE AND LITERATURE
144	SPANISH LANGUAGE AND LITERATURE
145	SWAHILI
146	CLASSICAL LANGUAGE AND LITERATURE
148	FOREIGN LANGUAGE EDUCATION
149	BUSINESS EDUCATION
150	HEALTH SCIENCE
151	APPLIED BIOLOGY
152	ENVIRONMENTAL STUDIES
153	READING
154	BEHAVIORAL STUDIES
155	GENERAL BUSINESS
156	OCCUPATIONAL STUDIES
157	ENGINEERING ENGINEERING TECH: INTERFACE
158	NURSING
160	GRAPHIC ARTS
161	MARINE TECHNOLOGY
300	AGRICULTURE VO-TECH
301	DENTAL ASSISTING
304	DENTAL SUPPORT

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